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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/560,481

06/12/2006

Detlef Potoradi

POTORADI-2

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EXAMINER

NGUYEN, HANH N

ART UNIT

PAPER NUMBER

2834

MAIL DATE

DELIVERY MODE

04/29/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/560,481	Applicant(s) POTORADI, DETLEF	
	Examiner HANH N. NGUYEN	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remarks

1. In view of amendments, the Examiner withdraws the objection to the drawings and the objection to claims 6-8.

Claim Objections

2. Claims 6-9 are objected to because of the following informalities: "85%, 90% and 80% $\pm 10\%$ " should be written as:--- 85%, 90% and 80% $\pm 10\%$ of the slot pitch---. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi et al (US 7,067,948). in view of Huth (US 6,664,690) and further in view of Sibata (provided by the Applicant as US 5,220,228).

Regarding claims 6 and 7, Yamaguchi et al. disclose a permanent-magnet excited synchronous motor, comprising: a stator (21 in Fig. 4) having a plurality of tooth coils (22 in) and a rotor (30 in Figs. 3 and 4) interacting with the stator and constructed to dampen both fifth harmonic and seventh harmonic (Figs. 8 and 9 show the torque for fifth and seven harmonics are reduced by skewed angle, therefore both fifth harmonic and seventh harmonic are

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dampened), wherein at least one of the rotor and stator has a skew (Col. 4, lines 5-7). Nakano et al. fail to show the rotor has skew of $3/5$ (or $3/7$ as in claim 7) of a slot pitch with respect to the synchronous motor and wherein the pole coverage is of between 85% and 90% (or $80\% \pm 10\%$ of the pole pitch as in claim 7).

However, Huth discloses a permanent-magnet excited motor having rotor pole coverage having the range from 75% - 80% of the pole pitch (Col. 2, lines 10-14) for the purpose of reducing cost (Col. 1, lines 55-60).

Moreover, Sibata discloses a permanent magnet excited motor wherein the rotor poles are skewed with a skew angle in the haft of a slot pitch range (Col. 3, line 25) for the purpose of reducing cogging torque.

Since Nakano et al., Huth and Sibata are in the same field of endeavor, the purpose disclosed by Huth and Sibata would have been recognized in the pertinent art of Nakano et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Yamaguchi et al. by forming the rotor has skew of $3/5$ (or $3/7$ as in claim 7) of a slot pitch with respect to the synchronous motor and wherein the pole coverage is of between 85% and 90% (or $80\% \pm 10\%$ of the pole pitch as in claim 7) as taught by Huth and Sibata for the purpose of reducing cogging torque and reducing cost.

Moreover, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

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Regarding claims 8 and 9, it is noted that all limitation of the claimed invention has been fulfilled by Yamaguchi et al., Huth and Sibata as in claims 6 and 7 because the limitation “wherein the total skew between the rotor and stator” in claims 8 and 9 is equivalent to the limitation: “at least one of the rotor and stator has a skew” of claims 6 and 7.

Regarding claims 10, 12, 14 and 16, Sibata also shows the permanent-magnet excited synchronous motor wherein the rotor comprises a plurality of permanent magnets (12a in Figs. 2A and 2B) and the permanent magnets are arranged or magnetized in an axial direction of the rotor so as to provide a desired rotor skew.

Regarding claims 11, 13, 15 and 17, Sibata also shows the permanent-magnet excited synchronous motor wherein the permanent magnets are selected from the group consisting of cup-shaped magnets (Fig. 2A).

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (571) 272-2031. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner 's supervisor, Darren Schuberg, can be reached on (571) 272-2044. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and (571) 273-8300 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HNN

April 24, 2008

/Nguyen N Hanh/

Examiner, Art Unit 2834

2.